

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* FRANK E. SEMERSKY

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Appeal 2007-0404  
Application 10/684,611  
Technology Center 1700

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Decided: March 23, 2007

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Before THOMAS A. WALTZ, CATHERINE Q. TIMM, and  
LINDA M. GAUDETTE, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Primary Examiner's final rejection of claims 1 through 25, which are the only claims pending in this application. We have jurisdiction pursuant to 35 U.S.C. §§ 6 and 134.

According to Appellant, the invention is directed to a container or multilayer preform comprising a first layer of plastic, and a second layer of plastic contacting the first layer, where the second layer of plastic is formed

as a foam with foam cells containing carbon dioxide (Br. 2). Independent claim 1 is representative of the invention and is reproduced below:

1. A container, comprising:

a first layer of plastic; and

a second layer of plastic contacting said first layer, said second layer of plastic formed as a foam wherein the foam cells contain carbon dioxide.

The Examiner has relied on the following references as evidence of unpatentability:

Haase	US 3,684,633	Aug. 15, 1972
Park	US 5,149,579	Sep. 22, 1992
Kocher	US 5,919,547	Jul. 06, 1999
Hayes	US 6,485,819 B2	Nov. 26, 2002

#### ISSUES ON APPEAL

Claims 1, 2, 5, 8-13, 16-19, and 22 stand rejected under 35 U.S.C. § 102(b) as anticipated by Park (Answer 3). Claims 1-11, 22, and 23 stand rejected under 35 U.S.C. § 102(e) as anticipated by Hayes (*id.*).

Claims 3, 4, 6, 7, 14, 15, 20, 21, and 23-25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Park in view of Hayes (Answer 4). Claims 12-17 and 24 stand rejected under § 103(a) over Hayes in view of Park (Answer 5). Claims 18-21, and 25 stand rejected under § 103(a) as unpatentable over Hayes in view of Haase (Answer 6). Claims 1-11, 22, and 23 stand rejected under § 103(a) as unpatentable over Kocher in view of Hayes (Answer 7).<sup>1</sup>

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<sup>1</sup> The rejection of claims 8 and 9 under the second paragraph of 35 U.S.C. § 112 has been withdrawn by the Examiner (Answer 2-3).

Appellant contends that Park uses carbon dioxide for controlling the density of the foam, creating bubbles, with this blowing agent diffusing through the cells walls, and thus the foam cells do not contain carbon dioxide as claimed (Br. 5).

Appellant contends that Hayes discloses injecting an inert gas such as carbon dioxide into the melt for the desired foaming action in the melt, but fails to disclose a layer of plastic where the foam cells contain carbon dioxide as claimed (Br. 6).

With regard to all of the rejections based on § 103(a), Appellant contends that there is no motivation to combine these references, and even if combinable, the references do not require the foam cells to contain carbon dioxide as claimed (Br. 6-8).

The Examiner contends that it was known in the art that, when using carbon dioxide as a blowing agent, some of the carbon dioxide will remain in the cells of the foam (Answer 7-8).

The Examiner also contends that even if the foam sheet is aged for a period of time to allow diffusion of the blowing agent and air through the cell walls, the foam cells would contain air which comprises small amounts of carbon dioxide (Answer 8).

The Examiner further contends that adequate motivation has been established for each rejection based on § 103(a) (Answer 8-9).

Accordingly, the issues in this appeal are as follows: (1) do the foam cells of Park or Hayes contain carbon dioxide as required by the claims on appeal? and (2) has the Examiner established an adequate motivation or

suggestion to combine the references as proposed in the rejections on appeal based on § 103(a)?

We determine that the Examiner has established that the foam cells of Park and Hayes contain an amount of carbon dioxide that falls within the scope of the claims on appeal. We also determine that the Examiner has established sufficient motivation to combine the references as proposed in the rejections on appeal. Therefore, we determine that the Examiner has established a prima facie case of anticipation and obviousness, which has not been adequately rebutted by Appellant's arguments. Accordingly, we AFFIRM all rejections on appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

#### OPINION

##### A. The Rejections based on § 102

We determine the following factual findings from the record in this appeal regarding Park and Hayes:

- (1) Park discloses polypropylene foam sheets and a process for their manufacture, with the sheets used in packaging and service applications such as trays, plates, and containers (col. 1, ll. 9-13; col. 4, ll. 8-12);
- (2) Park discloses a method of forming the foam sheet where a physical blowing agent is injected into the plasticated mixture of polypropylene resin and a nucleating agent (col. 4, ll. 46-55; col. 5, ll. 22-33);

- (3) Park teaches that the continuous foam sheet product is aged for a period of time “to allow for diffusion of the blowing agent and air through the cell walls to bring it to equilibrium” (col. 8, ll. 20-23);
- (4) Park teaches formation of a multilayer foam sheet where the foam sheet comprises at least one layer of the polypropylene foam sheet and at least one functional layer to act as a water vapor or gas barrier to extend the shelf life (col. 8, ll. 44-57);
- (5) Park teaches that the multilayer foam sheet is produced by preparing the foam mixture as before, supplying the foam mixture and a separately plasticated functional resin to the multimanifold die of an extruder, and co-extruding the two resins into a continuous multilayered foam sheet (col. 9, ll. 15-28);
- (6) Park teaches that the blowing agent may be nitrogen, carbon dioxide, and other inert gases, and this agent dissolves in the polymer under high pressure and temperature, creating bubbles to form the foam (col. 10, ll. 30-53);
- (7) Hayes discloses copolyesters that have utility as barriers to moisture, oxygen, carbon dioxide, and the like, useful in packaging of foodstuffs (col. 8, ll. 6-8; col. 11, ll. 9-12);
- (8) Hayes teaches producing biodegradable shaped foamed articles from his copolyesters, providing the foaming action in the polymer melt by injection of an inert gas such as nitrogen or carbon dioxide (col. 15, ll. 32-61); and

- (9) Hayes teaches that the polymeric film of his invention may be combined with other polymeric materials to form laminates or multilayer films with improved water vapor resistance (col. 9, l. 61-col. 10, l. 8).

Under § 102, anticipation requires that the prior art reference disclose, either expressly or under the principles of inherency, every limitation of the claim. *See In re King*, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). During examination proceedings, claims are given their broadest reasonable interpretation as understood by one of ordinary skill in the art consistent with the specification. *See In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Graves*, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995). The Examiner, if relying upon the theory of inherency, must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *See In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). If a prior art product at any point in time is identical to the claimed product, the claimed product is anticipated by the prior art product. *See Exxon Chem. Pats. Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1558, 35 USPQ2d 1801, 1804-05 (Fed. Cir. 1995).

Applying the preceding legal principles to the factual findings on this record, we determine that the Examiner has established a prima facie case of anticipation in view of the reference evidence. All of the claims on appeal require that the foam cells “contain carbon dioxide” (*see* claim 1 on appeal). Giving this language its broadest reasonable interpretation, we construe this

phrase as including *any* amount of carbon dioxide, even infinitesimal amounts. We note that the Specification does not place any limits on the amount of carbon dioxide present in the foam cells.

In view of our claim construction as noted above, we determine that the Examiner has established that the foam cells of Park and Hayes would inherently contain some amount of carbon dioxide. See factual finding (3) above, where Park teaches that the foam cells contain carbon dioxide (the blowing agent) at some point in time before the blowing agent diffuses through the cell wall during aging. Accordingly, at this point in time, the foam sheet in the multilayer co-extruded product of Park anticipates the claimed container or multilayer preform. See *Exxon Inc. v. Lubrizol, supra*. Even after aging, Park teaches that the foam cells of the multilayer co-extruded product contain air, which the Examiner notes contains small amounts of carbon dioxide (Answer 8).<sup>2</sup> Thus the aged product of Park would also anticipate the claims as construed above.

Our remarks above equally apply to Hayes. We note that both Park and Hayes disclose methods of forming a foamed product which are the same or substantially the same as disclosed by Appellant, namely injecting a blowing agent of carbon dioxide into a plasticated polymeric melt (Hayes, col. 15, ll. 36-40; Park, col. 9, ll. 17-28; and the Specification 4:5-14). Accordingly, this evidence alone provides a reasonable belief that the products of the prior art references will have identical or substantially

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<sup>2</sup> See the *CRC Handbook of Chemistry and Physics*, 48<sup>th</sup> ed., F-142, The Chemical Rubber Co., Cleveland, OH, which discloses that atmospheric air contains 0.033% by volume of carbon dioxide.

identical foamed cells to those of the claimed foamed layer. *See In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

For the foregoing reasons and those stated in the Answer, we determine that the Examiner has established a prima facie case of anticipation in view of Park or Hayes, which case has not been adequately rebutted by Appellant's arguments. Therefore, we affirm the rejections on appeal based on §102 (b) over Park and § 102(e) over Hayes.

B. The Rejections based on § 103(a)

In addition to the factual findings listed above, we determine the following factual findings from the record in this appeal:

(1) Park teaches various combinations of layers to form multilayer containers, such as foam layers of polypropylene and functional layers (col. 8, l. 28-col. 9, l. 59);

(2) Hayes teaches multilayer laminates for use in food packaging where the foam layer is made from a copolyester for improved biodegradability, thermal properties, and water vapor resistance, and may be combined with PET films (col. 1, ll. 5-6; col. 2, ll. 25-27; col. 8, ll. 6-8; col. 9, l. 61-col. 10, l. 8);

(3) Haase teaches a dinner plate formed from a polystyrene foam layer sandwiched between two polystyrene layers (col. 1, ll. 24-31; col. 3, ll. 9-14); and

(4) Kocher discloses a food container comprising a support member 12 which may be foamed, and a gas-impermeable sealant film 34, where both layers may be made from PET resin or they may be different resins (col. 10, ll. 8-39).



When relying on numerous references or a modification of the prior art, it is incumbent upon the Examiner to identify some suggestion, motivation, or reason to combine the references or make the modification. *See In re Mayne*, 104 F.3d 1339, 1342, 41 USPQ2d 1451, 1454 (Fed. Cir. 1997).

Applying this legal principle to the factual findings on this record, we determine that the Examiner has adequately provided sufficient motivation or suggestion to combine the references as proposed in the Answer 4-7. Appellant argues that “the cited references do not contain any motivation or suggestion to combine references” (Br. 6). However, Appellant has not specifically identified any error in the Examiner’s establishment of motivation or suggestion to combine the references (Answer 4-7). Appellant’s sole argument appears to be that “none of the cited references requires the foam cells to contain carbon dioxide” (Br. 6). This argument is not well taken for reasons discussed above regarding Park and Hayes.

Accordingly, we determine that the Examiner has established a prima facie case of obviousness based on the reference evidence. Based on the totality of the record, including due consideration of Appellant’s arguments, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of § 103(a). Therefore, we affirm all rejections on appeal based on § 103(a).

#### C. Summary

The rejection of claims 1-2, 5, 8-13, 16-19, and 22 under § 102(b) over Park is affirmed. The rejection of claims 1-11, 22, and 23 under § 102(e) over Hayes is affirmed.

The rejection of claims 3, 4, 6, 7, 14, 15, 20, 21, and 23-25 under § 103(a) over Park in view of Hayes is affirmed. The rejection of claims 12-17 and 24 under § 103(a) over Hayes in view of Park is also affirmed. The rejection of claims 18-21 and 25 under § 103(a) over Hayes in view of Haase is affirmed. The rejection of claims 1-11, 22, and 23 under § 103(a) over Kocher in view of Hayes is affirmed.

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

sld/lis

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